

**R E M A R K S**

The Examiner is thanked for conducting an interview on January 16, 2004. The application has been amended along the lines discussed with the Examiner in the interview, and reconsideration is respectfully requested.

**THE CLAIMS**

Claim 1 has been amended to clarify the features of the present invention whereby the objective lenses include objective lenses having different optical path lengths, and whereby the correcting mechanism comprises at least one flat optical correcting element adapted to be selectively inserted in said optical path in accordance with which of said objective lenses is selectively placed on said optical path, so as to maintain the optical path length of the optical system without moving said dispersion element of said pre-chirp compensator.

In addition, claims 14, 18, 19 and 20 have been amended in a similar manner to claim 1. In this connection, however, it is noted that claims 18 and 19 have been amended to recite "a parallel plain plate" instead of an optical correcting element, in accordance with the disclosure in the specification at page 22, lines 4-9.

Still further, claim 16 has been amended to reflect the amendments to claim 14.

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered.

THE PRIOR ART REJECTION

Claims 1-3, 5-7, 10-12 and 14-21 were rejected under 35 USC 103 as being obvious in view of the combination of USP 5,862,287 ("Stock et al"), the G.J. Brakenhoff et al publication cited by the Applicant ("Brakenhoff et al"), and USP 5,034,613 ("Denk et al"), and claim 13 was rejected under 35 USC 103 as being obvious in view of the combination of Stock et al, Brakenhoff et al, Denk et al and USP 6,169,289 ("White et al"). These rejections, however, are respectfully traversed with respect to the claims as amended hereinabove.

According to the present invention as recited in amended independent claim 1, a multiphoton excitation scanning laser microscope is provided which comprises, in particular an optical system that includes (i) a pre-chirp compensator disposed on said optical path such that the pulse laser beam passes therethrough, and preset to provide said pulse laser beam with a certain amount of pre-chirp compensation, said pre-chirp compensator comprising optical elements which cause components of the pulse laser beam to be emitted in order of wavelength such that shorter wavelengths are emitted earlier than longer wavelengths, (ii) a

plurality of objective lenses adapted to be selectively placed on said optical path for collecting the pulse laser beam on the same, the objective lenses including objective lenses having different optical path lengths, and (iii) a correcting mechanism for correcting an optical path length of said optical path so as to be constant no matter which of said objective lenses is selectively placed on said optical path, wherein said correcting mechanism comprises at least one flat optical correcting element adapted to be selectively inserted in said optical path in accordance with which of said objective lenses is selectively placed on said optical path, so as to maintain the total optical path length of the optical system without moving said optical elements of said pre-chirp compensator.

As described on page 5 of the specification of the present application, taking the time to adjust the pre-chirp compensator to account for different optical path lengths causes the fluorescent light generated from the sample to fade in proportion to the time spent adjusting the pre-chirp compensator.

Typically, this problem is addressed by removing the sample from the observation field during adjustment of the pre-chirp compensator, however, it is difficult to accurately re-position the sample within the observation view field after the adjustment. Thus, adjusting the pre-chirp compensator to account for differences in optical path lengths is impractical.

The present invention as recited in amended claim 1 overcomes these difficulties by using flat optical elements which can be selectively inserted into the optical path to account for the differences in optical path lengths caused by different objective lenses. Thus, the optical path length of the optical system remains unchanged despite the differences in optical path lengths of the objective lenses. It is therefore unnecessary to adjust the pre-chirp compensator to account for the different optical path lengths of the objective lenses. Since the optical elements of the pre-chirp compensator, such as prisms, are not moved, and since a flat optical element is used to compensate for the optical path length, the pulse laser beam does not deviate from its path, and the pulse laser beam is always applied to the appropriate position of a sample. The claimed present invention thus provides a solution to the problem of changing observation positions, which is caused when the pre-chirp compensator is adjusted.

It is respectfully submitted that Stock et al does not at all suggest that the position of the pre-chirp compensator must remain constant and that the correcting mechanism must be adjusted. In fact, Stock et al does not even recognize the problems caused by adjusting the pre-chirp compensator that are solved by the present invention. Still further, Stock et al discloses that the compressor 40 may comprise an optical fiber, a

diffraction grating pair, chirped optical fiber Bragg gratings, or a prism pair. That is, Stock et al does not disclose, teach or suggest a correcting mechanism comprising at least one flat optical element that may be selectively inserted in the optical path.

Thus, it is respectfully submitted that Stock et al does not recognize the problem solved by the claimed present invention and, moreover, that Stock et al does not at all disclose, teach or suggest the solution to the problem recited in amended claims 1, 14 and 20 whereby the correcting mechanism comprises at least one flat optical correcting element adapted to be selectively inserted in said optical path in accordance with which of said objective lenses is selectively placed on said optical path, so as to change the optical path length of the optical system without moving said optical elements of said pre-chirp compensator.

It is respectfully submitted, moreover, that Stock et al also does not disclose, teach or suggest the feature of the present invention as recited in amended claims 18 and 19 whereby the correcting mechanism comprises a parallel plain plate whose optical path length is adjustable by applying different pressures in accordance with which of said objective lenses is selectively placed on said optical path, so as to maintain the optical path

length of the optical system without moving said optical element of said pre-chirp compensator.

And it is further respectfully submitted that Denk et al, Brakenhoff et al and White et al also do not recognize the problems solved by the present invention and do not disclose, teach or suggest the above-described claimed features of the present invention as recited in amended independent claims 1, 14 and 18-20.

In view of the foregoing, it is respectfully submitted that amended independent claims 1, 14 and 18-20 and claims 2, 3, 5-7, 10-13 and 21 respectively depending therefrom all patentably distinguish over Stock et al, Brakenhoff et al, Denk et al and White et al, taken singly or in any combination, under 35 USC 103.

RE: THE IDS FILED SEPTEMBER 2, 2003

In the Office Action mailed October 21, 2003, the Examiner did not act on the Information Disclosure Statement filed September 2, 2003. It is respectfully requested that the Examiner consider the publications submitted with the IDS filed September 2, 2003 and make them of record. And it is also respectfully requested that the Examiner return an initialed copy of the Form PTO/SB/08A filed September 2, 2003 to indicate that

the publications listed therein have been considered and made of record.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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